

## CLAIMS

1. A compound semiconductor epitaxial substrate for use in a strain channel high electron mobility field effect transistor, comprising an InGaAs layer as a strain channel layer and an AlGaAs layer containing n-type impurities as an electron supplying layer, wherein said InGaAs layer has an emission peak wavelength at 77 K of 1030 nm or more.

2. The compound semiconductor epitaxial substrate according to claim 1, wherein GaAs layers are provided as spacer layers in contact with a top surface and a bottom surface of said InGaAs layer, respectively.

3. The compound semiconductor epitaxial substrate according to claim 2, wherein each of said GaAs layers has a thickness of 4 nm or more.

4. The compound semiconductor epitaxial substrate according to claim 1, wherein said InGaAs layer has an electron mobility at 300 K of  $8300 \text{ cm}^2/\text{V}\cdot\text{s}$  or more.

5. A method for manufacturing the compound semiconductor epitaxial substrate according to claim 1, 2, 3, or 4, comprising epitaxially growing each compound semiconductor layer by employing a metalorganic chemical vapor deposition (MOCVD) method.